

REMARKS

Claim 41 stands rejected under §112(2). Claim 41 has been cancelled without prejudice, rendering this rejection moot.

Claims 33 and 35-42 stand rejected under § 102(e) on the basis of Stirnimann et al. '641. Claims 16, 18, 19 and 32 stand rejected under § 103 on the basis of Stirnimann et al. and Burguette et al. '699.

The rejections of independent claims 16, 33 and 38 will be addressed together. Applicants traverse the rejections of independent claim 16, 33 and 38 because the cited references do not disclose or suggest a rate of crosslinking which is 85% or more, as in the amended independent claims.

In the present application, “rate of crosslinking” corresponds to “bond ratio” used in the specification. Support for the newly introduced crosslinking feature is given in Table 1. With this feature, the friction coefficient of the lubricating layer becomes 0.7 or less, making it possible to manufacture a magnetic disk in which disk crashing is successfully prevented.

With Stirnimann et al., the dose of energy radiation or duration of exposure must be increased, which is not practical for production of a magnetic disk. Moreover, Stirnimann uses the phrase “crosslinked fluoropolymer”, but column 4, line 62 explains that this crosslinking is the one formed between the lubricating layer (lubricant compositions) and the DLC layer (carbon layer).

The present invention, on the other hand, recognizes that the foregoing

mechanism is already known, but such a process is not practical because of the need for a long exposure time. Further, in the present invention, crosslinking is caused between the lubricating molecules by using lubricating molecules having a photocrosslinking functional end group. The present specification presents one example of deterioration of bond rate for the case in which the end group is not crosslinking, as in the comparative experiment in EXPERIMENT 12. This clearly indicates the importance of crosslinking between the molecules of the lubricating layer.

The examiner might assert that the crosslinking of the present invention is easily deduced from the prior art of optical crosslinking between different monomers or general purpose polymers. If so, applicants contend that crosslinking between molecules in such a microscopic or small-scale world in which the film has a thickness of only several nanometers corresponding to 1-3 polymer layers is unknown. In such an extremely small scale world, interaction between the molecules cannot be deduced or suggested from the behavior of bulk materials, in which there occur numerous contacts between the molecules. Accordingly, withdrawal of the rejections of independent claims 16, 33 and 38, and their respective dependent claims, is respectfully requested.

Dependent claim 34 stands rejected under § 103 on the basis of Stirnimann et al. and Nohr et al. '550, and dependent claim 17 stands rejected under § 103 on the basis of Stirnimann, Burguette and Nohr. Applicants traverse these rejections for the reasons given with respect to the independent claims.

For the foregoing reasons, applicants believe that this case is in condition for allowance, which is respectfully requested. The examiner should call applicants' attorney if an interview would expedite prosecution.

Respectfully submitted,

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